

APPENDIX N

Section 810 Analysis

The ANILCA Section 810 Analysis of Subsistence Impacts was prepared by the BLM and submitted to the Corps for inclusion in the Draft EIS on November 6, 2015.

Note to Reader:

The Appendix N ANILCA Section 810 Analysis is a preliminary analysis whose conclusions are used by the U.S. Bureau of Land Management to determine if BLM should hold public hearings to obtain additional information, primarily in relation to potential impacts to subsistence issues, related to the proposed project. After holding those hearings, BLM will take the next step in analyzing their conclusions to date in light of the public input from the hearings, other applicable analyses, and public comment processes.

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ANILCA § 810 PRELIMINARY ANALYSIS OF SUBSISTENCE IMPACTS

This analysis of subsistence impacts is for the Donlin Gold Project Environmental Impact Statement (EIS). Donlin Gold, LLC, (Donlin Gold) submitted applications to Bureau of Land Management (BLM) for a right-of-way (ROW) grant, and related authorizations in July 2012 and January 2013. Donlin Gold is seeking approval to construct, operate, maintain, and close a 315-mile, 14-inch diameter natural gas pipeline and associated fiber optic cable from the west side of Cook Inlet to the mine site.

The proposed 315 mile long pipeline ROW would traverse approximately 96.7 miles of BLM land north and west of the Alaska Range in the Kuskokwim River valley in discontinuous segments from about Milepost (MP) 168 to MP 310 of the proposed pipeline ROW. This represents about 30.7 percent of the total ROW length, with State of Alaska lands constituting about 65.5 percent, and ANCSA Corporation lands (Calista Corporation, The Kuskokwim Corporation [TKC], and Cook Inlet Region, Inc. [CIRI]) constituting 3.7 percent. The pipeline is part of the energy supply infrastructure for the proposed open pit gold mine located approximately 10 miles north of the village of Crooked Creek. In addition to the pipeline and the mine site, the Donlin Gold project will include transportation infrastructure for barge transportation on the Kuskokwim River. Two of the six alternatives analyzed in this EIS would affect the pipeline component. Alternative 3B would substitute a diesel pipeline for the natural gas pipeline within the same planned ROW. Alternative 6A would substitute a variation in the ROW from MP 106.5 to MP 152.7, affecting State of Alaska lands, but not BLM lands.

The proposed Donlin Gold Project is evaluated as an integrated whole with three components: mine site, transportation infrastructure, and pipeline. Although the permit application to the BLM focuses on the BLM-managed portions of the pipeline ROW, the National Environmental Policy Act (NEPA) prohibits segmenting a project into smaller components in order to minimize the estimate of environmental consequences. As a result, this review of impacts to subsistence will address the whole project and not just the portion subject to permitting by the BLM.

This analysis uses information presented in the Donlin Gold Draft EIS to evaluate the potential impacts to subsistence pursuant to Section 810(a) of the Alaska National Interest Lands Conservation Act (ANILCA). Chapter 1 describes the purpose and need for the proposed action, along with the regulatory and permitting authorities of the lead and cooperating agencies. Chapter 2 provides an overview of the proposed action and six alternatives, including major components at the mine site, transportation infrastructure, and pipeline. Chapter 3 (Environmental Analysis) describes the affected environment of the EIS Analysis Area and analyzes the potential direct and indirect environmental consequences of the proposed action and alternatives. Chapter 4 describes cumulative effects. This 810 analysis presents the BLM findings of the effects of the Donlin Gold proposed project to subsistence uses and resources.

Subsistence Evaluation Factors

Section 810(a) of ANILCA, 16 USC § 3120(a), requires that an evaluation of subsistence uses and needs be completed for any federal determination to “withdraw, reserve, lease, or otherwise permit the use, occupancy or disposition of public lands.” As such, an evaluation of potential

impacts to subsistence under ANILCA § 810(a) must be completed for the Donlin Gold Draft EIS. ANILCA requires that this evaluation include findings on three specific issues:

1. The effect of use, occupancy, or disposition on subsistence uses and needs;
2. The availability of other lands for the purposes sought to be achieved; and
3. Other alternatives that would reduce or eliminate the use, occupancy, or disposition of public lands needed for subsistence purposes (16 USC § 3120(a)).

The evaluation and findings required by ANILCA § 810 are set out for each of the six alternatives considered in the Donlin Gold Draft EIS.

To determine if a significant restriction of subsistence uses and needs may result from any one of the alternatives discussed in the Donlin gold Draft EIS, including their cumulative effects, the following factors in particular are considered:

- The reduction in the availability of subsistence resources caused by a decline in the population or abundance of harvestable resources. This may include fish, wildlife, edible plants, house logs, fire wood or drinking water, for example. Forces that might cause a reduction include adverse impacts on habitat, direct impacts on the resource, increased harvest, and increased competition from non-subsistence users.
- Reductions in the availability of resources used for subsistence purposes caused by alteration of their distribution, migration patterns, or location, and;
- Limitations on access to subsistence resources, including from increased competition for the resources, including physical and legal barriers.

This analysis begins with evaluations and findings for the No Action Alternative and for each of the six action alternatives discussed in the Donlin Gold Draft EIS. The cumulative case, is also evaluated. The information contained in Chapter 3, Section 3.21 of the Donlin Gold Draft EIS is the primary data used in this analysis.

Findings

The Section 810 Evaluation shall conclude with a distinct finding that the proposed action and alternatives may or will not significantly restrict subsistence uses for identified subsistence communities or groups.

A finding of *may significantly restrict* requires that the process be stopped for the action and the action prohibited; **or** that the agency proceed to the notice and hearings step described below. A finding of no significant restriction completes the Section 810 process.

A proposed action and/or alternatives would be considered to significantly restrict subsistence uses if, after consideration of any stipulations or protection measures included as a part of each alternative, it can be expected to result in a substantial reduction in the opportunity to continue subsistence uses of renewable resources. Substantial reductions in the opportunity to continue subsistence uses generally are caused by: large reductions in the abundance, or a major redistribution of resources; extensive interference with access; or major increases in the use of those resources by non-subsistence users. A proposed action and/or alternatives may be found to

not create a significant restriction, but it may be appropriate for the analyst to identify and attempt to mitigate localized, individual restrictions created by an action.

The Findings shall be stated as either:

This evaluation concludes that the action will not result in a significant reduction in subsistence uses; or

This evaluation concludes that the action may result in a significant restriction to subsistence uses for the communities of _____ due to (specify causes).

The first Finding, above, is frequently referred to as a Negative Finding, in that no significant restrictions are expected to occur. Likewise, the second Finding is commonly referred to as a positive finding, in that significant restriction may be expected to occur.

In some cases, individual alternatives will fall below the may significantly restrict threshold, and only the cumulative case exceeds the threshold. It should be noted that the cumulative effects analysis is not, in and of itself, a proposed action. Instead, the purpose of the cumulative effects analysis is to determine the effects of the proposed action and alternatives together with other past, present, and reasonably foreseeable future actions. In this way, a finding of *may significantly restrict subsistence uses* in the cumulative case is, in effect, a positive finding, even though the finding is only noted under the cumulative case. A positive finding in the cumulative case triggers the Notice, Hearing, and Determination requirements of ANILCA Section 810(a).

Notice and Hearings

A finding that the proposed action may significantly restrict subsistence uses imposes additional requirements, including provisions for notices to the State of Alaska and appropriate regional and local subsistence committees, as well as a hearing in the vicinity of the area involved.

Determinations

Following the notice and hearings, at the time of the final EIS, for the proposed action to proceed, the BLM must make the following determinations, as required by Section 810(a)(3):

- Such a significant restriction of subsistence uses is necessary, and consistent with sound management principles for the utilization of the public lands;
- The proposed activity will involve the minimal amount of public lands necessary to accomplish the purposes of use, occupancy, or other disposition; and
- Reasonable steps will be taken to minimize adverse effects upon subsistence uses and resources resulting from such actions.

Environmental Justice

In addition to ANILCA, Executive Order 12898 on Environmental Justice calls for an analysis of the effects of federal actions on minority populations with regard to subsistence. Specifically, Environmental Justice is:

The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including a racial, ethnic, or socioeconomic group should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies.

Section 4-4 of Executive Order 12898, regarding the Subsistence Consumption of Fish and Wildlife, requires federal agencies to collect, maintain, and analyze information on the consumption patterns of populations who principally rely on fish and/or wildlife for subsistence, and to communicate to the public any risks associated with the consumption patterns. The subsistence analysis for the proposed Donlin Gold Project and alternatives, located in Chapter 3, Section 3.21.6 (Environmental Consequences), has been reviewed and found to comply with the requirements of the Environmental Justice Executive Order.

ANILCA § 810(a) Evaluations and Findings for All Alternatives and the Cumulative Case

The following evaluations are based on information relating to the environmental and subsistence consequences of the No Action Alternative, and Alternatives 2, 3A, 3B, 4, 5A and 6 as outlined in Chapter 3, and the cumulative case as presented in Chapter 4 (Environmental Consequences), of the Donlin Gold Draft EIS. The evaluations and findings focus on potential impacts to the subsistence resources themselves, as well as access.

Alternative 1 (No Action Alternative) - Evaluation and findings

Alternative 1 of the Donlin Gold Draft EIS is the No Action Alternative. Selection of this alternative would result in current management of BLM lands under the Southwest Management Framework Plan (1981), and the Ring of Fire Resource Management Plan (2008). Under this alternative the mine site, natural gas pipeline and transportation infrastructure would not be built. Project related impacts (both positive and negative) would not occur under the No Action Alternative. The evaluations and findings presented here conclude that the impacts to subsistence as a result of this alternative would be minimal.

Evaluation of the Effect of Use, Occupancy, or Disposition on Subsistence Uses and Needs

Under the No Action alternative, there would be no reduction in the abundance of harvestable resources used for subsistence purposes. There would be no adverse impacts on wildlife habitats, direct impacts on subsistence resources, or increased harvest and increased competition from non-subsistence users. There would be no reduction in the availability of subsistence resources caused by an alteration in their distribution, migration or location. There would be no limitation on the access of subsistence users to harvestable resources, including physical and legal barriers.

Evaluation of the Availability of Other Lands for the Natural Gas Pipeline ROW

Under the No Action Alternative, the mine, natural gas pipeline and transportation infrastructure would not be built. Therefore, there would be no need to evaluate other lands for the natural gas pipeline.

Evaluation of Other Alternatives that would Reduce or Eliminate the Use, Occupancy, or Disposition of Public Lands Needed for Subsistence Purposes

Under the no Action alternative, the mine, natural gas pipeline and transportation infrastructure would not be built. Therefore, there would be no need to evaluate other ways to accommodate the proposed action.

Findings

This evaluation concludes that the No Action Alternative will not result in a significant reduction in subsistence uses and will not significantly restrict subsistence uses and needs. The impacts to subsistence resources and access discussed above would be minimal, as the mine, pipeline and transportation infrastructure would not be built. Project related impacts (both positive and negative) would not occur under the No Action Alternative. This finding applies to the villages of Tuntituliak, Napakiak, Napaskiak, Oscarville, Bethel, Kwethluk, Akiakchak, Akiak, Tuluksak, Kalskag, Lower Kalskag, Aniak, Chuathbaluk, Napaimute, Crooked Creek, Georgetown, Red Devil, Sleetmute, Stony River, McGrath, Nikolai, Tyonek, Skwentna.

Alternative 2 (Proposed Action) - Evaluation and Findings

A detailed description of Alternative 2 can be found in Chapter 2 of the Donlin Gold Draft EIS, and includes descriptions of the mine site, transportation facilities, and the natural gas pipeline (section 2.3.2) , during construction, while the mine is in operation, and after mine closure.

In Alternative 2, Donlin Gold is proposing the development of an open pit, hardrock gold mine located in the Kuskokwim River watershed, 277 miles west of Anchorage, 145 miles northeast of Bethel, and 10 miles north of the community of Crooked Creek. The proposed project would require approximately 3 to 4 years to construct with a projected mine life of approximately 28 years. Major project components include the mine site; transportation facilities; and the natural gas pipeline. Alternative 2 would deliver about 59,000 short tons per day of ore for approximately 28 years to supply an onsite mill, which would produce gold through crushing and grinding, flotation, pressure oxidation and cyanide leaching of the concentrate, and stripping, electrowinning, and refining. The proposed mine and related facilities would have a total footprint of approximately 16,300 acres.

Mine Site

The mine site component includes two open pits (ACMA pit and Lewis pit), a waste rock facility (WRF), ore processing facilities, a tailing storage facility (TSF), water treatment plants, facilities to house the workforce, equipment to transport ore from the open pit to the processing plant, hydrologic control features (freshwater diversion dams, contact water dams, and a freshwater reservoir), and a 227 MW power plant. The 2,240-acre WRF and overburden stockpile would be immediately east of the pit in the American Creek valley. The WRF would be unlined; drainage

control would be provided using engineered rock drains and secondary rock (finger) drains. Runoff would be captured. The 2,351-acre TSF would be built in the Anaconda Creek valley immediately south of the WRF. The TSF would have the capacity to store 568 million tons of tailings. A dam would be constructed to contain tailings during operations. The final height of the tailings dam would be 464 feet above existing ground surface. The ACMA pit would be approximately 1,850 feet deep from the high wall, and Lewis pit would be approximately 1,653 feet deep from the high wall. The two pits would merge at the surface into one roughly oval, open pit; about 2.2 miles long by 1 mile wide near the end of the operations and maintenance phase.

- Mine site equipment and facilities to be built include: Construction camps (temporary) to provide living quarters for up to 2,560 workers, support facilities, warehouse and storage space, a water treatment and waste disposal system, communication facilities, and power generation facilities. During operations and maintenance, the permanent camp would house 638 workers.
- Open pit mining would require drilling, blasting, loading, and hauling equipment; haul roads and access roads; TSF; WRF; overburden stockpiles; and growth media stockpiles within the mine site.
- Mine equipment used at the mine during construction and operations includes wheel loaders, dozers, drills, shovels, and haul trucks. Auxiliary mine equipment includes: blast hole drills, blasting emulsion trucks, dozers, service trucks, transport vehicles, and trailer-mounted lights.
- The mine operation would have a projected average mining rate of 422,000 tons per day. Total waste rock material is estimated at 2.99 billion tons, with approximately 2.46 billion tons to be placed in a waste rock facility located outside the mine pit and the remaining waste rock backfilled in one of the pits. Total tailings are estimated at 568 million tons with a density of 78 pounds per cubic foot to be placed in a conventional slurry tailings facility.
- Processing facilities to crush and grind ore for feed to flotation, flotation concentrate pressure oxidation, carbon-in-leach circuit, gold recovery, tailings management and recycle water management. The ore processing plant would require a minimum of about 3,200 gallons per minute (gpm) of fresh water to operate and average about 17,500 gpm over the life of the mine.
- Mercury abatement would occur at all mercury emission sources in the processing facility. All mercury would be transported in specially designed and marked mercury containers that would be managed in accordance with the mercury management plan and state and federal requirements
- Sodium cyanide handling and storage procedures would be in accordance with state and federal requirements and the International Cyanide Management Code (ICMC) as developed by the International Cyanide Management Institute. During operations, 2535

tons of sodium cyanide will be barged to the mine on the Kuskokwim River annually, to be used to process ore. Sodium cyanide would be shipped from the manufacturer to the mine site on barges as solid briquettes in 22-ton International Standards Organization (ISO) approved type 2 watertight sparge tank-tainers.

- Power would be provided by a dual fuel power plant (natural gas and diesel). Power from the plant would be distributed to the main process areas of the mine by power cables and overhead transmission lines.
- Eight freshwater wells would be drilled south of Omega Gulch, near Crooked Creek, to supply domestic and sanitary water supplies. Two wastewater treatment plants (WTP) would be installed at the mine site.
- At the ACMA and Lewis open pits, there would be up to 35 pit perimeter wells and 80 in-pit dewatering wells. Some pit dewatering groundwater would be treated to meet Alaska Department of Environmental Conservation (ADEC) Water Quality Standards and discharged to Crooked Creek; the remainder would be used in the processing facilities.
- Hazardous waste would be managed at the mine site through the hazardous waste classification system described in federal regulation 40 CFR Part 262 under the Resource Conservation and Recovery Act (RCRA).

The Proposed Action would have an average process throughput rate of 59,000 tons of ore per day, and an estimated operational life of 27.5 years. The mine site would occupy a total area of approximately 14 square miles (9,000 acres).

Transportation Facilities

The Transportation Facilities component includes construction of expanded port facilities at the Bethel cargo terminal, a new port site at Angyaruaq (Jungjuk) on the Kuskokwim River, a 30-mile mine access road from the Kuskokwim River to the mine, a 5,000-foot airstrip, transportation facilities, Kuskokwim River Barge traffic to supply the mine with fuel and cargo, and closure and reclamation of the Transportation Facilities. Alternative 2 proposes 64 cargo barge round trips, and 58 fuel barge round trips (122 total round annual trips) from the Bethel port site to the Angyaruaq (Jungjuk) port site during a 110 day shipping season (June 1 to October 1). River barges would be transported by a tug pushing a four barge configuration each trip. Each fuel barge trip would carry 1.29 million gallons of diesel fuel.

Alternative 2 would include shipping cargo from marine terminals in Seattle and Vancouver via ocean barges to a cargo terminal in Bethel. At Bethel, cargo would be transferred from ocean barges to river barges for towing up the Kuskokwim River to the up-river Angyaruaq (Jungjuk) Port site. Cargo would be transported by truck from the port to the mine site. Transportation facilities include:

- Consolidation of annual consumables and other general cargoes in Seattle and Vancouver operated by third parties or marine transport companies. Forward deployment of

construction and general cargoes to Dutch Harbor or Juneau prior to the start of the shipping season on the Kuskokwim River.

- A cargo terminal in Bethel with three general cargo berths (one for ocean barges and two for river barges), a 950-foot long berth face, a 200-foot wide concrete ramp for roll-on/roll-off cargo handling, a 16-acre storage yard, and 6 million gallons of fuel storage.
- The 21-acre upriver Angyaruaq (Jungjuk) Port site including a 700- to 800-foot long wharf, a pocket berth for barges, a ramp to the pocket berth, container handling equipment, seasonal storage for containers and break-bulk cargo, barge season office/lunchroom facilities, a truck shop, and 2.8 million gallons of fuel storage.
- A 30-mile long, gravel two-lane road from the port site to the mine site. Diesel fuel would be off loaded from river barges and transported from the Jungjuk port to the mine with 13,500 gallon capacity tanker trucks making 27 trips per day or 2963 round trips per 110 shipping season. An additional 27 trips per day or 2917 annual trips will move cargo from the port to the mine site. The road would require 45 stream crossings and 13 borrow pits to construct.
- A 5,000-foot long by 150-foot wide gravel airstrip capable of supporting DeHavilland Dash 8 and Hercules C-130 aircraft. The airstrip would be located approximately nine miles west of the mine site and accessed by a three mile spur road beginning at mine access road mile 5.4. An estimated 5154 flights to the airstrip are expected annually during construction, and 1718 per day during operations.
- Construction of transportation facilities would begin upon receipt of permits and would take approximately 1.5 years working year round.

Natural Gas Pipeline

A 14-inch diameter steel pipeline would be constructed to transport natural gas approximately 315 miles from an existing gas pipeline tie-in near Beluga, Alaska, to the mine site power plant. Except for two aboveground sections constructed over faults (each approximately 1,300 feet long), the pipeline would be buried within a 51-foot wide ROW on BLM-managed lands, and a 50-foot ROW width elsewhere. Horizontal Directional Drilling (HDD) methods or winter trenching would be used to bury the pipeline at stream and water body crossings. Six of the 42 major water body crossings are proposed as HDD crossings. The pipeline would deliver up to 73 million standard cubic feet per day of natural gas, at a maximum allowable operating pressure (MAOP) of 1,480 pounds per square inch gauge (psig). Electrical power for the compressor station at MP 0.4 would be supplied by a 25-kilovolts (kV) transmission line from the existing Beluga Power Plant. The transmission line and a fiber optic cable would be carried on electric transmission supports to the metering station at the start of the pipeline near the tie-in.

Pipeline and Ancillary Facilities

Donlin Gold has applied to the BLM for authorization of a ROW to install the pipeline and fiber optic cable. Estimated total acreage on federal, state, and ANCSA Corporation lands for the 300-foot planning corridor is 11,457 acres. Ancillary facilities such as 12 airstrips (supporting construction), nine construction camps, and 65 storage yards for pipe and equipment would require 2,643 acres. Planned above-ground ancillary facilities include:

- A compressor station would be constructed on about 1.5 acres of land near MP 0.4. Three fully automated compressors (two required, one standby) of approximately 1,000 horsepower each would be used to deliver natural gas at different rates and pressures as needed.
- A transmission line for power for the metering station (MP 0) and compressor station (MP 0.4) would be provided by a medium voltage aboveground transmission line from the existing Beluga Power Plant substation.
- A pig launcher and receiver stations would be able to launch or receive both maintenance and in-line "smart" pigs. A pig launcher assembly would be located at the start of the pipeline (MP 0) and configured for above-grade, permanent installation. The compressor station (MP 0.4) would have one set of standard design receiver and launcher assemblies. A midpoint receiver/launcher facility would be constructed near Farewell (MP 156), and the terminus of the pipeline at the mine site would have a pig receiver. All of the pig launcher and receiver sites would include aboveground piping, valves, and valve controls.
- Two metering stations would include one at the pipeline tie-in (MP 0) and the second at the terminus (mine site) (MP 315). The mine site station would include limited aboveground piping and a module to house the metering equipment. Power to the MP 315 station would be provided by the mine site power plant.
- Twenty main line valves would be placed at intervals of 20 miles (or less) along the length of the pipeline. Four would be co-located with other facilities: the Beluga Pipeline (BPL) tie-in, the compressor station, the Farewell pig launcher/receiver facility, and the pipeline terminus at the mine site. Three of these (BPL tie-in, the compressor station, and the pipeline terminus) would function as emergency shutdown valves and would be able to be remotely and/or automatically operated. Mainline valves would close in the event of a pipeline leak to minimize loss of contents.

Temporary work areas would be cleared during construction as necessary outside of the authorized 150-foot construction corridor, including:

- Pipeline and storage yards (PSY)- During construction, pipe and equipment would be stored at yards in Bethel, Beluga, the mine site, the Oil Well Road area, and near the barge landing sites on the Kuskokwim River, serving as primary staging points for pipe materials and also for the majority of the heavy construction equipment. They would supply 57 smaller PSYs (approximately 1.5-acre each) spaced at about 5-mile intervals along the ROW.
- Borrow Sites- Borrow sites would provide gravel fill material for construction of access and shoofly roads, airstrips, camp pads, PSYs, compressor and meter station pads, and gravel work pads, and include processing plants for crushed and/or screened material. Approximately two million cubic yards of material are estimated for use in the proposed project. Seventy potential borrow sites, ranging from 1 to nearly 50 acres, have been identified.
- Construction Camps- Mobile and stationary construction camps would be used along the pipeline ROW to provide temporary housing for construction crews. About 233 total acres would be required for the seven anticipated 300-person camps and two 100-person camps.

- Of the seven proposed 300-person camps, only four would be active at any given time. In addition, smaller 30-person camps would be used to support the construction at HDD crossings and compressor station construction.
- A total of nine new and three existing airstrips would be used to support pipeline construction. Nine strips would be 5000 feet in length, one 4000 feet and two would be 3500 feet long. Existing airstrips are at Beluga, Farewell and the existing Donlin Gold airstrip.

Temporary access roads required during construction include a winter access corridor (ice road) and gravel temporary and shoofly roads. These include:

- Winter Access Corridor – An approximately 46- to 50-mile, 30-foot wide winter access corridor would be constructed to transport equipment and supplies from the Parks Highway via Petersville Road or at Willow via the Willow Creek Parkway. The majority of either route has previously been utilized as commercial/industrial winter trails, and they share a corridor for the final 12 miles approaching the pipeline corridor at its Skwentna River crossing. Nineteen water extraction sites are anticipated for construction with a required total estimated annual extraction volume of 66 million gallons (Mgal). Water withdrawal procedures would comply with appropriate permits and authorizations.
- Temporary Access Roads and Shoofly Roads - Temporary site access and shoofly roads (short temporary roads) would be required to construct or improve airstrips, borrow sites, water withdrawal sites, and other authorized temporary use areas such as PSYs. The temporary roads would total about 156 miles and cover nearly 49 acres. A total of 75 proposed shoofly roads range from 0.09 miles to 6.91 miles long and total about 77 miles.

Evaluation of the Effect of Use, Occupancy, or Disposition on Subsistence Uses and Needs

The direct and indirect effects of Alternative 2 on subsistence resource abundance and availability, access, competition, and socio-cultural effects (job, incomes, shift work) are detailed in Section 3.21.6.3 of the Donlin Gold Draft EIS. The assessment of effects on subsistence practices from changes in resource abundance and availability draws on the analysis of biological effects provided in Section 3.12, Wildlife (including Birds), and Section 3.13, Fish and Aquatic Resources. The analysis of impacts to access focuses on disturbance and displacement from traditional subsistence use areas based on spatial and seasonal overlaps between project activities and subsistence use areas for the affected communities. The analysis of restrictions due to competition examines the potential for the proposed project to introduce new users of fish and wildlife resources in the area of the proposed action.

Mine Site

The effects to subsistence from the mine site would have the most effect on communities closest to the mine, including Napaimute and especially Crook Creek. Mine activities (ore trucks in the mine, trucks on the port road, drilling, blasting, power generation, port site activity) would likely change the distribution of wildlife species important to subsistence (moose, caribou, furbearers), would be long term, and would cause potential impacts during the construction phases and during mining activities throughout the life of the mine. Areas important to Crooked Creek for berry picking would be directly affected by the mine, and adjacent areas would potentially be contaminated with dust emissions containing various particulate materials from ore processing,

maintaining haul roads and access roads. This could make the berries undesirable or unusable to subsistence users. Water released from the mine during operations has the potential to affect salmon and resident fish populations important to subsistence, as well as the aquatic food web in Crooked Creek and the Kuskokwim River. After mine closure, the pit lake would fill with untreated water (containing mine site reagents, traces of sodium cyanide, traces of mercury suppressant and insoluble sulfide-mercury particles, autoclave discharge, and human waste) that could be toxic to fish and wildlife, and run off from the tailings dam and pit lake would have potential to contaminate fish resources important to subsistence in Crooked Creek and the lower Kuskokwim River into perpetuity, impacting subsistence fish resources important to all communities from Crooked Creek to the mouth of the Kuskokwim River.

Natural Gas Pipeline

The effects to subsistence from construction and operation of the natural gas pipeline would affect the villages of Tyonek, Skwentna, Nikolai, McGrath, Takotna, as well as the downriver villages of Sleetmute, Stony River, Georgetown and Crooked Creek. During construction, the effects of clearing the ROW, trenching, drilling and the presence of machinery, pipeline transport, workers, and infrastructure on and along the pipeline ROW would cause a redistribution of moose, caribou and furbearers, and affect access to subsistence use areas and availability of subsistence resources. During mine operations, the airstrip that would remain along the pipeline ROW at Farewell would increase access to subsistence resources by non-local residents using aircraft, and increase competition for those subsistence resources along and adjacent to the pipeline ROW. Villages affected by increased access to and competition in the area include McGrath, Nikolai, Takotna.

Transportation Infrastructure

The effects to subsistence from transportation infrastructure, including barging of cargo and fuel and the construction of a port at Angyaruaq (Jungjuk) on the Kuskokwim River, would affect all villages on the river from the Crooked Creek to the mouth of the Kuskokwim River. These villages include Bethel, Napaiak, Napaskiak, Oscarville, Kwethluk, Akiakchak, Akiak, Tuluksak, Upper and lower Kalskag, Aniak, Chuathbaluk, Napaimute and Crooked Creek. Impacts from barging include displacement, disruption or reduced access to subsistence fishing activities and sites (set nets, fish wheels, processing rafts) along the river. Subsistence fish resources (salmon and resident fish species populations) may also be negatively affected by the magnitude and intensity of barge traffic proposed in Alternative 2. Effects to fish may increase when river water levels are low, as barge rafts will need to be uncoupled and barges towed individually or in pairs, or lighter barge loads per trip would be required to navigate to the Jungjuk port. This would require additional barge round trips on the river, and increase impacts to subsistence fishers on the Kuskokwim River and to subsistence fish resources.

Spill Impacts

Under Alternative 2, spills of fuel, cyanide and other hazardous materials necessary for the mining operation have the potential to impact subsistence species as well as subsistence harvest patterns, depending on the amount and the location of the spill. Section 3.24, Spill Risk, in the Draft EIS identifies hazardous materials, describes existing response capacities, and reviews probabilities of spills of various sizes. The fate and behavior of spilled materials is then outlined, followed by a set of nine specific spill scenarios to be analyzed in detail. For this 810 analysis,

nine spill scenarios are outlined with an analysis of potential impacts to subsistence resources and uses.

Under Alternative 2 the following spills scenarios and impacts are identified:

- *Scenario 1: Ocean Barge Rupture at Sea*
In this scenario, approximately 735,000 gallons of diesel would be released from a grounding south of the Kuskokwim River mouth. Of this volume, half or 367,500 gallons would reach the shore. This spill could have the potential to affect hundreds of miles of shoreline and could affect near shore subsistence activities. For this 810 analysis, this spill scenario would impact subsistence resources and use, the magnitude and duration of which would depend on the location and volume of the spill, season of the year, and clean up and emergency response time. The indirect effect of the spill is contamination of marine and coastal subsistence resources, and would be more impacting if the spill occurred during salmon runs. The effect of this spill scenario would have major impacts to subsistence resources on the Kuskokwim River.
- *Scenario 2: River Barge Release*
The spill scenario indicates that up to 37,817 gallons would be released from a breach of the double hull and two compartments in the fuel barge. Timely response and clean up might recover half of this, or 18,908 gallons. The spill impact would affect fish and water birds in the Kuskokwim River, including Chinook Salmon and migratory birds. The effect of this spill scenario would have major impacts to subsistence resources on the Kuskokwim River.
- *Scenario 3: Tank Farm Release*
Storage of diesel fuel would occur in tank farms located in Dutch Harbor, Bethel, Angyaruaq (Jungjuk) Port, and at the mine site. Secondary containment structures are generally engineered to hold 110% of the volume of the largest tank. The spill scenario for this material estimates that the entire contents of a tank are released, but contained with the secondary containment structure. The effect of this spill to subsistence resources would depend on the location and volume of the spill, season of the year, the length of time the spill was in secondary containment, and clean up and emergency response time. A release of diesel fuel to the surrounding environment in this scenario would have major impacts to subsistence resources on the Kuskokwim River or the coastal marine environment.
- *Scenario 4: Tanker Truck Release*
Tanker truck spills would occur at the Jungjuk Port or on the port road to the mine. The spill scenario is for loss of up to 13,500 gallons, with recovery dependent on whether tundra or water bodies are affected. The effect of this spill to subsistence resources would depend on the proximity to wetlands and waterways, season of the year, and clean up and

emergency response time, but could be major if it contaminated wetlands or reached the Kuskokwim River.

- *Scenario 7: Cyanide Release*

If the cyanide came into contact with water, both aquatic and terrestrial mammals could be adversely affected. Cyanide reacts readily in the environment and degrades or forms complexes and salts of varying stabilities. It is toxic to the all living organisms used for subsistence at very low concentrations. The effect of a Cyanide spill on subsistence resources would depend on the volume of cyanide spilled, but could have major effects on freshwater and marine environments, depending on where it is spilled.

- *Scenario 8: Mercury Release*

If elemental mercury is spilled, some of it would be emitted as gaseous mercury, which could be highly toxic to animals. If spilled mercury escapes cleanup efforts, it would be subject to natural methylation processes and would add incrementally to the mercury levels in the ground and air, thus increasing the chronic exposure of aquatic biota and fish. Mercury persists in the environment, and bio-accumulates within food webs, potentially increasing exposure to fish-eating animals. The effect of wind born dust from trucks on the port road, or release of mercury vapor during ore processing could have affects on fish, terrestrial wildlife and vegetation near the mine and thereby have major effects to subsistence users.

- *Scenario 9: Partial Tailings Dam Failure*

In the event of a tailings dam failure, contaminated tailings and water would be released into the Crooked Creek and into the Kuskokwim River. The impacts to subsistence resources and use would include reduced access for local subsistence users, and contaminated water resources important fish and terrestrial wildlife, including salmon and resident fish populations. A tailings dam failure could not be easily or quickly cleaned up, and affects would continue long term, and would affect subsistence fish resources in communities down river from the mine. This scenario would have major impacts to subsistence resources for the whole Kuskokwim River watershed.

Evaluation of the Availability of Other Lands for the Natural Gas Pipeline ROW

The proposed Donlin Gold Project extends from the west side of Cook Inlet through the natural gas pipeline ROW to the mine site located 10 miles north of the village of Cooked Creek. Transportation infrastructure includes the mine access road and upriver barge landing at Angyaruaq (Jungjuk) Port and the connected action involving improvements to the Bethel Yard Dock, Bethel Fuel Storage, and Dutch Harbor Fuel Storage facilities. Large segments of the proposed project are outside of BLM-managed federal lands. The location of the mine site and the transportation infrastructure is not on federal land. As noted above, the BLM-managed portion of the pipeline ROW is located in discontinuous segments from about Milepost (MP) 168 to MP 310 of the proposed pipeline ROW, amounting to about 30.7 percent of the total ROW length.

The proposed pipeline ROW was engineered to optimize many environmental and economic considerations. The most direct routes are most economic, provided that environmental hazards, such as permafrost and hazardous slope conditions, are avoided. Ridgelines were used where possible to minimize wetlands impacts. The ROW configuration was designed to minimize overlap and proximity with the Iditarod National Historic Trail and to avoid Alaska Native allotments. No detailed analysis of alternative routes to avoid BLM-management lands is available. From MP 169 to MP 204, the proposed ROW partially overlaps with 6 townships of BLM-managed lands, and non-BLM-managed lands are nearby (i.e. up to 5 miles away) (see Figure 3.15-1B in the Donlin Gold Draft EIS). However, this observation does not include consideration of geotechnical or wetlands features. From MP 220 to MP 235, and from MP 255 to MP 310, BLM lands are in large contiguous blocks which would virtually preclude alternative routing to avoid BLM-managed lands. It is unlikely that alternative non-federal lands can feasibly substitute for the proposed ROW segments on BLM-managed lands.

McGrath, Nikolai, and Takotna have documented use areas for large mammals and berries in the vicinity of MP 175, west of Windy Fork, within the BLM-managed lands of the ROW (see Figure 3.21-60 and Figure 3.21-62 in the Donlin Gold Draft EIS). These three communities have documented use areas of large mammal harvest in the vicinity of MP 150 of the pipeline ROW, near Farewell, but this is outside of the BLM-managed lands.

Crooked Creek residents have documented use areas for moose in the George River basin where the pipeline ROW crosses the East Fork George River and the George River (approximately MP 280–295) (see Figure 3.21-16 in the Donlin Gold Draft EIS).

Evaluation of Other Alternatives that would Reduce or Eliminate the Use, Occupancy, or Disposition of Public Lands Needed for Subsistence Purposes

Alternatives that would reduce or eliminate the use of public lands needed for subsistence purposes include Alternative 1 (No Action). Section 2.4 in the Donlin Gold Draft EIS, Alternatives Considered but Eliminated from Detailed Analysis, discusses other alternatives that were considered, but eliminated from detailed analysis due to economic or technological disadvantages, or because they did not meet the purpose of the proposed action to produce the gold resource discovered on Calista Corporation and TKC lands at the Donlin Gold site.

Findings

This evaluation concludes that Alternative 2 may result in significant restriction to subsistence uses for the communities of Crooked Creek and Napaimute in relation to the mine site, the communities on the Kuskokwim River for barge traffic on the river (Bethel, Napaiak, Napaskiak, Oscarville, Kwethluk, Akiakchak, Akiak, Tuluksak, Upper and lower Kalskag, Aniak, Chuathbaluk, Napaimute and Crooked Creek), and the communities of McGrath, Nikolai and Takotna for increased access and competition from non-local users at the Farewell airstrip, along the pipeline right-of-way. In addition, potential spill scenarios involving ocean and river barge release of diesel fuel, cyanide, mercury, tailings dam failure, and release of untreated water from the pit lake and tailings dam after mine closure may also result in significant restriction to subsistence uses for the Kuskokwim River communities listed above.

Alternative 3A Reduced Diesel Barging: LNG-Powered Haul Trucks – Evaluation and Findings

Alternative 3A would use LNG instead of diesel to fuel the large (300 plus-ton payload) trucks that would move waste rock and ore from the open pits. These large trucks would account for approximately 75 percent of the total annual diesel consumption under Alternative 2. Trucks hauling cargo and fuel on the mine access road from Angyaruaq (Jungjuk) Port would not be converted to LNG.

The primary differences between Alternative 3A and Alternative 2 would be the addition of an LNG plant and storage tanks near the processing plant, reduced consumption of diesel, reduced barge trips, reduced on-site diesel storage, and increased natural gas consumption.

At present, LNG-powered haul trucks are not currently in full commercial production. The technology to use natural gas products (such as LNG or compressed natural gas) in other industrial applications is proven and equipment manufacturers are actively developing dual-fuel (diesel and natural gas) options for the mining industry.

For Alternative 3A, a 220,000-gallon per day LNG plant would be constructed near the terminus of the natural gas line at the mine site. The LNG plant, storage containers, and distribution facilities footprint would be within an area that would be disturbed under Alternative 2.

The transportation infrastructure to support mine and pipeline construction and mine operation under Alternative 3A is similar to that of Alternative 2. The amount of diesel fuel transported by barge to Dutch Harbor, Bethel, and Angyaruaq (Jungjuk) Port would be reduced from a peak of 42.3 Mgal/year to 13.3 Mgal/year.

Five diesel barge trips would be required between Dutch Harbor and Bethel instead of the 14 trips that would be required under Alternative 2. Additional diesel storage in Bethel would be reduced or eliminated. Peak annual project-related fuel and cargo barge traffic on the Kuskokwim River would be reduced from an estimated 122 round trips to 83 (from approximately 1.1 round trips per day to approximately 0.7 round trips per day). Fuel barge trips on the Kuskokwim River would be reduced from 58 to 19 per year. The diesel storage capacity at Angyaruaq (Jungjuk) Port would be reduced. Compared to Alternative 2, tanker truck traffic on the port access road would be the same during construction but would be reduced by approximately 75 percent during operations. Natural gas usage would be greater for Alternative 3A (15.5 billion standard cubic feet (BSCF)/year) than for Alternative 2 (11.2 BSCF/year). The natural gas pipeline proposed under Alternative 2 would not require any modifications to transport the increased amount. Other than increased throughput, the natural gas pipeline component would be identical to Alternative 2.

Evaluation of the Effect of Use, Occupancy, or Disposition on Subsistence Uses and Needs

This reduction in river barge traffic would reduce by about one-third the potential effects on riverine habitat and subsistence resources, and potential barge interference with subsistence fishing gear, fish camps, and processing rafts. The reduction would translate into larger time intervals between barges. Under Alternative 2, it was estimated that 2-3 barge passings would occur per day, or at an interval of about 8 to 12 hours between passings. Under Alternative 3A, total annual barge round trips would be reduced to 83, representing 166 one-way trajectories. In

the 110-day barging season, this would result in barge passings being reduced to 1-2 barge passings per day, with an interval of 12–24 hours between barge passings.

Although barge traffic is reduced in Alternative 3A, effects on subsistence uses from changes in subsistence resources and access to subsistence resources in the vicinity of the mine site and along the pipeline route would be the same as in Alternative 2, since there would be no change in the pipeline or mine associated with Alternative 3A. Competition for resources and socio-cultural impacts to subsistence practices would be the same as Alternative 2.

Spill Impacts

Under Alternative 3A, spill impacts to subsistence are generally the same as those found in Alternative 2, except that a new scenario on release of LNG is relevant.

- ***Scenario 6: Liquefied Natural Gas (LNG) Release***

LNG spills could be small (pinhole leaks from the storage tanks or spills while fueling the LNG-fueled trucks), or larger (LNG-fueled truck accident or unlikely rupture of LNG plant storage tank with release of up to 55,000 gallons of LNG). If released, LNG would transition back to a gaseous phase (California Energy Commission 2014). If a large amount of LNG is spilled on water within a short period of time, the relatively warmer temperature of the water would cause the LNG to rapidly transition to its gaseous phase. The impacts to subsistence from an LNG release would depend on the location, magnitude and duration of the spill, and how quickly the release of gas could be stopped.

Evaluation of the Availability of Other Lands for the Natural Gas Pipeline ROW

Alternative 3A would make no change in the ROW alignment, so the evaluation of alternative lands would be the same as Alternative 2.

Evaluation of Other Alternatives that would Reduce or Eliminate the Use, Occupancy, or Disposition of Public Lands Needed for Subsistence Purposes

Alternatives that would reduce or eliminate the use of public lands needed for subsistence purposes include Alternative 1 (No Action). Section 2.4, Alternatives Considered but Eliminated from Detailed Analysis, discusses other alternatives that were considered, but eliminated from detailed analysis due to economic or technological disadvantages, or because they did not meet the purpose of the proposed action to produce the gold resource discovered on Calista Corporation and TKC lands at the Donlin Gold site.

Findings

Impacts to subsistence from the mine site and pipeline components for Alternative 3A would be the same as for Alternative 2. For the transportation infrastructure component, the reduced number of barge trips in Alternative 3A would be reduced compared to Alternative 2, but the frequency of barge trips would still impact subsistence fishing and use of the river, and may result in significant restriction to subsistence uses for Kuskokwim River communities outlined in Alternative 2. In addition, increased access and competition from non-local users at the Farewell airstrip, as well as potential spill scenarios involving ocean and river barge release of diesel fuel, cyanide, mercury, tailings dam failure, and release of untreated water from the pit lake and

tailings dam after mine closure may result in significant restriction to subsistence uses for the communities of McGrath, Nikolai and Takotna, and Kuskokwim River communities down river from the mine.

Alternative 3B Diesel Pipeline – Evaluation and Findings

Under Alternative 3B, an 18-inch diameter diesel pipeline would be constructed from Cook Inlet to the mine site to virtually eliminate diesel barging on the Kuskokwim River during operations. The natural gas pipeline proposed for Alternative 2 would not be constructed; natural gas would not be used. The power plant would be fueled only with diesel.

The diesel pipeline would traverse 334 miles and would be buried within the same corridor proposed for the natural gas pipeline described under Alternative 2 (See Section 2.3.4). This design would require an additional segment between the Tyonek North Foreland Facility and the proposed natural gas pipeline corridor start. This additional segment would cross the Beluga River using HDD. The pipeline alignment crossing the Castle Mountain and Denali-Farewell faults would be constructed above grade like the natural gas pipeline proposed in Alternative 2. A leak detection and spill response plan would be developed for review and approval by ADEC. A software-based leak detection system would be installed with connection to the operations center. Regular over-flights to monitor the pipeline would be required. Manual block valves would be installed on each bank at 27 stream crossing locations where the bank-full width of the stream exceeds 100 feet, and check valves would be installed on the downstream side of each crossing. Improvements to the existing Tyonek North Foreland Barge Facility and transportation of diesel fuel in Cook Inlet would be required. The diesel pipeline would require a robust leak detection system and pre-positioned response infrastructure and equipment, so some construction facilities and most airstrips would be maintained throughout operations. Portions of gravel roads developed during construction along the ROW may be left to provide overland access in the event of spills. Spill response equipment would be staged at major streams, the dock facility, tank farms, and other strategic locations along the pipeline corridor.

Ocean and river barge specifications would be the same as in Alternative 2 until the diesel pipeline is operational, when fewer barges and tugs would be required. There would be fewer trucks hauling diesel on the Angyaruaq (Jungjuk) Port road. All other transportation facility components would be the same as in Alternative 2. The infrastructure required at the mine site under Alternative 3B would be the same as in Alternative 2, with the exception of the additional fuel storage tanks for use of diesel in the power plant.

Alternative 3B would eliminate all barge traffic necessary to transport diesel fuel to the mine site. Without fuel barging, the barging activity would consist of 64 round trips per year for cargo, instead of 122 round trips, resulting a reduction of barge traffic on the Kuskokwim River by 48 percent.

Evaluation of the Effect of Use, Occupancy, or Disposition on Subsistence Uses and Needs

Impacts to subsistence from the mine site, pipeline and transportation infrastructure components for Alternative 3B would be the same as for Alternative 2. The number of barge trips would be reduced compared to Alternative 2, but would still involve 64 total round trips, which may result in significant reduction in subsistence uses for communities on the Kuskokwim River as outlined

in Alternative 2. In addition, the potential spills of diesel fuel from the pipeline in Alternative 3B may affect subsistence fish resources along the pipeline ROW, the extent of which would depend on the volume of fuel spilled, season of year and proximity of the spill to watersheds. Diesel tanker traffic in Alternative 3B would increase the potential for fuel spills in Cook Inlet and collisions with marine mammals, affecting the subsistence resources for the village of Tyonek. Potential impacts to subsistence resources in the Kuskokwim watershed from contaminated runoff from the mine pit and tailings dam after closure is the same as for Alternative 2.

Spill Impacts

Under Alternative 3B, the likelihood of Scenarios 2 through 4 (river barge, tank farm, and tanker truck releases) occurring would be reduced due to decreased barge activity, but the impacts would be of the same types as those discussed under Alternative 2. Scenarios 7 and 8 (cyanide and mercury releases) would have the same impacts on subsistence as Alternative 2. Rupture of an ocean-going barge in Cook Inlet and a diesel pipeline release are new scenarios associated with this alternative.

- *Scenario 1: Ocean Barge Rupture at Sea (Cook Inlet)*

During the operations and closure phases, diesel fuel would be delivered by ocean-going vessel to a fuel dock at Tyonek, resulting in an increased spill risk from ocean barge rupture in Cook Inlet. Diesel fuel spills could occur if a tanker ran aground or was otherwise compromised; however, only one or two barge compartments would be expected to fail. In the event of such an occurrence, the direct impacts would be as described above under Alternative 2 and would depend on the size of the spill, wind and weather, the extent of dispersion, cleanup response time, and time of year. If a spill occurred during the summer it would impact salmon runs in Cook Inlet. Fuel spills in Cook Inlet would also impact Cook Inlet Belugas. The effect of this spill scenario would have major impacts to subsistence resources in Cook Inlet.

- *Scenario 5: Diesel Pipeline Release*

Spills from the proposed pipeline, associated pump stations, valves, or pigging facilities could occur during project operation. A spill on land would have less impact than a spill in water since spills in water could potentially have a wider footprint and affect various fish species that are important subsistence resources for many communities. If the spill reached a river at a pipeline crossing, the effects of the spill would be much like a river barge spill. The pipeline crosses several streams that are habitat for spawning salmon and some resident fish species. Underground pipeline leaks may go undetected and contaminate water resources over long periods of time. The spill scenario was for a major rupture and a large volume of diesel spilled, namely 422,000 gallons or more. A spill of this scale could result in major impacts to water bodies, wetlands and vegetation, birds, fisheries, marine mammals, and subsistence uses.

Evaluation of the Availability of Other Lands for the Natural Gas Pipeline ROW.

Alternative 3B would make no change in the ROW alignment, so the evaluation of alternative lands would be the same as Alternative 2.

Evaluation of Other Alternatives that would Reduce or Eliminate the Use, Occupancy, or Disposition of Public Lands Needed for Subsistence Purposes

Alternatives that would reduce or eliminate the use of public lands needed for subsistence purposes include Alternative 1 (No Action). Section 2.4, Alternatives Considered but Eliminated from Detailed Analysis, discusses other alternatives that were considered, but eliminated from detailed analysis due to economic or technological disadvantages, or because they did not meet the purpose of the proposed action to produce the gold resource discovered on Calista Corporation and TKC lands at the Donlin Gold site.

Findings

Impacts to subsistence from the mine site and pipeline components for Alternative 3B would be the same as for Alternative 2. For the transportation infrastructure component, the reduced number of barge trips in Alternative 3B would be reduced compared to Alternative 2, but the frequency of barge trips would still impact subsistence fishing and use of the river, and may result in significant restriction to subsistence uses for Kuskokwim River communities outlined in Alternative 2. The effects of diesel fuel spills along the pipeline ROW may result in significant restriction to subsistence fish resource uses to Tyonek, Skwentna, and Crooked Creek under Alternative 3B. In addition, increased access and competition from non-local users at the Farewell airstrip, as well as potential spill scenarios involving ocean and river barge release of diesel fuel, cyanide, mercury, tailings dam failure, and release of untreated water from the pit lake and tailings dam after mine closure may result in significant restriction to subsistence uses for the communities of Tyonek, McGrath, Nikolai and Takotna, and Kuskokwim River communities down river from the mine.

Alternative 4 Birch Tree Crossing Port – Evaluation and Findings

Alternative 4 would move the proposed port site to Birch Tree Crossing (BTC), about 69 river miles below the proposed Angyaruaq (Jungjuk) Port site and 123 river miles upstream from Bethel, reducing the barge distance for freight and diesel to the mine site. The same volume of cargo and diesel fuel would be transported by barge as in Alternative 2, and there would be no other substantive changes to other project components. The 65-acre BTC Port site would be situated on the Kuskokwim River consisting of an onshore pad with areas for general storage, fuel storage, a warehouse truck shop, and living accommodations, and a filled area on the riverbank to allow container barges to dock. The estimated annual ocean and river barge trip numbers between Bethel and the port site would be the same as in Alternative 2.

An approximately 75-mile, 30-foot wide, all-season gravel access road (about 2.5 times longer than the mine access road proposed in Alternative 2) would link the BTC port site to the mine site (Figure ES – 12) to transport fuel and cargo. The road would cross lands owned by TKC and the villages of Aniak, Chuathbaluk, and Crooked Creek. Public use of the road would not be allowed. Fifty borrow sites would be used to provide road construction material. The BTC road would cross 39 waterbodies, four of which are anadromous (Crooked Creek, Iditarod River, Cobalt Creek, and Owhat River). Eight stream crossings would require bridges.

The number of barge and truck trips overall would be the same as proposed in Alternative 2. Positioning the upriver port site at BTC rather than Angyaruaq (Jungjuk) site would not significantly change the total volume of cargo and fuel shipped from the Pacific Northwest to Bethel and to the mine site. The estimated annual ocean and river barge trip numbers would be the same as in Alternative 2.

Evaluation of the Effect of Use, Occupancy, or Disposition on Subsistence Uses and Needs

Impacts to subsistence from the mine site, pipeline and transportation infrastructure components for Alternative 4 would be the same as for Alternative 2. The barging distance on the Kuskokwim river would be less than for Alternative 2, but river villages down river from Aniak would still experience the same level of barge traffic as in Alternative 2. The risk of fuel spills from tanker trucks in Alternative 4 is increased compared to Alternative 2 due to the longer road from the river to the mine.

The road from the BTC site would cross the Owhat River watershed, which is an important area for subsistence activities by residents from Aniak, Chuathbaluk and Napaimute. Access to subsistence resources would likely be reduced during the summer period of road operations since hunting and trapping could be prohibited in the immediate vicinity of the road. The effects of the longer mine site road and the BTC Port on habitat that supports subsistence activities would be considered permanent, given Donlin Gold's intent to maintain the port and mine site road indefinitely to support monitoring efforts after the mine is closed. The BTC Port site would also displace set net and drift net fishing locations opposite the downstream mouth of Aniak Slough.

Spill impacts

Under this alternative, the likelihood of Scenario 2 (river barge release) occurring would be reduced due to reduced barging distances; however, the impacts would be of the same types as those discussed under Alternative 2. Impacts under Scenarios 1, 3, 4, 7, and 8 (ocean barge, tank farm, tanker truck, cyanide, and mercury releases) for Alternative 4 would be the same as those discussed under Alternative 2.

Evaluation of the Availability of Other Lands for the Natural Gas Pipeline ROW

Alternative 4 would make no change in the ROW alignment, so the evaluation of alternative lands would be the same as Alternative 2.

Evaluation of Other Alternatives that would Reduce or Eliminate the Use, Occupancy, or Disposition of Public Lands Needed for Subsistence Purposes

Alternatives that would reduce or eliminate the use of public lands needed for subsistence purposes include Alternative 1 (No Action). Section 2.4, Alternatives Considered but Eliminated from Detailed Analysis, discusses other alternatives that were considered, but eliminated from detailed analysis due to economic or technological disadvantages, or because they did not meet the purpose of the proposed action to produce the gold resource discovered on Calista Corporation and TKC lands at the Donlin Gold site.

Findings

Impacts to subsistence for the mine site, transportation infrastructure and pipeline components are the same as for Alternative 2. Barge traffic would not travel as far to the BTC port site, but Alternative 4 may result in a significant restriction to subsistence uses for the Kuskokwim River communities down river of the BTC port site (Bethel, Napaiak, Napaskiak, Oscarville, Kwethluk, Akiakchak, Akiak, Tuluksak, Upper and lower Kalskag).

Alternative 5A Dry Stack Tailings – Evaluation and Findings

Alternative 5A would use the dry stack tailings (DST) method instead of the subaqueous tailings storage method. This alternative was developed to avoid the perceived risk of accidental releases from the tailings dam proposed under Alternative 2. Under Alternative 5A, tailings would be dewatered in a filter plant using specialized equipment to produce a partially saturated, compactable filter cake. This material would be delivered to the dry stack TSF by truck, then spread and compacted in thin layers using bulldozers. Residual process water removed from the tailings would be transported to an operating pond via pipeline, and reclaimed water from the pond would be pumped back to the process plant for reuse. The dry stack TSF and operating pond would be in the Anaconda Creek valley in the same general location as in Alternative 2. The TSF would comprise a main dam and two upper dams that split the valley into two cells (Figure ES – 13). The main dam would contain the operating pond, and the upper dams would separate the pond from the DST. The main dam, upper dams, and operating pond would be fully lined, and two variants are analyzed; a liner beneath the DST and an unlined DST facility. An underdrain system would be placed in the major tributaries under the dry stack TSF and operating pond to intercept groundwater base flows and infiltration through the dry stack and convey it to the SRS. Water collecting in the SRS pond would be pumped to the operating pond, lower CWD, or directly to the process plant for use.

Evaluation of the Effect of Use, Occupancy, or Disposition on Subsistence Uses and Needs

Impacts from Alternative 5A to subsistence from the mine site, transportation infrastructure and pipeline components are the same as for Alternative 2.

Spill Impacts

Direct and indirect impacts of Alternative 5A under Scenarios 1 through 4, and 7 and 8 (ocean or river barge, tank farm, tanker truck, cyanide, and mercury releases) would be the same as those discussed under Alternative 2. The impacts of scenario 9 (tailings dam failure) would be less than Alternative 2.

Evaluation of the Availability of Other Lands for the Natural Gas Pipeline ROW

Alternative 5A would make no change in the ROW alignment, so the evaluation of alternative lands would be the same as Alternative 2.

Evaluation of Other Alternatives that would Reduce or Eliminate the Use, Occupancy, or Disposition of Public Lands Needed for Subsistence Purposes

Alternatives that would reduce or eliminate the use of public lands needed for subsistence purposes include Alternative 1 (No Action). Section 2.4, Alternatives Considered but Eliminated from Detailed Analysis, discusses other alternatives that were considered, but eliminated from detailed analysis due to economic or technological disadvantages, or because they did not meet the purpose of the proposed action to produce the gold resource discovered on Calista Corporation and TKC lands at the Donlin Gold site.

Findings

Impacts to subsistence for the mine site, transportation infrastructure and pipeline components of Alternative 5A are the same as for Alternative 2. Alternative 5A may result in a significant restriction to subsistence uses to communities on the Kuskokwim River due impacts from barge traffic, to the village of Crooked Creek and Napaimute due to the mine site, and to the villages of McGrath, Takotna and Nikolai for increases in competition for subsistence resources from non-local users.

Alternative 6 Modified Natural Gas Pipeline Alignment: Dalzell Gorge Route – Evaluation and Findings

Alternative 6A would realign the natural gas pipeline west between MP 106.5 to 152.7, traversing Dalzell Gorge. The route would deviate from the Alternative 2 alignment at approximately MP 106.5 (Table ES - 11) trend west, and parallel Happy River for approximately 5 miles before trending northwest at Pass Creek and through Rainy Pass and Dalzell Gorge. The terrain through the gorge is steep; the route through Rainy Pass starts at an elevation of 2,500 feet above mean sea level (MSL) and climbs to 3,327 feet MSL over about 6 miles. Approximately 34 miles of this route would be located in the immediate vicinity of, or cross, the Iditarod National Historic Trail (INHT). Alternative 6A would have mainline valves at approximately MP 119 and 138, 11 borrow sites, and 7 access roads ranging in length from 0.03 miles to nearly 3 miles. New gravel airstrips would be constructed at Pass Creek and Tatina. This alignment would cross Happy River and the South Fork of the Kuskokwim River using HDD, which may also be used to cross an area of slope instability in Dalzell Gorge.

Evaluation of the Effect of Use, Occupancy, or Disposition on Subsistence Uses and Needs

Impacts from Alternative 6 to subsistence from the mine site, transportation infrastructure and pipeline components are the same as for Alternative 2.

Spill impacts

Direct and Indirect impacts of Alternative 6 under Scenarios 1 through 4, and 7 and 8 (ocean or river barge, tank farm, tanker truck, cyanide, and mercury releases) would be the same as those discussed under Alternative 2.

Evaluation of the Availability of Other Lands for the Natural Gas Pipeline ROW

Alternative 6 would make no change in the ROW alignment, so the evaluation of alternative lands would be the same as Alternative 2.

Evaluation of Other Alternatives that would Reduce or Eliminate the Use, Occupancy, or Disposition of Public Lands Needed for Subsistence Purpose

Alternatives that would reduce or eliminate the use of public lands needed for subsistence purposes include Alternative 1 (No Action). Section 2.4, Alternatives Considered but Eliminated from Detailed Analysis, discusses other alternatives that were considered, but eliminated from detailed analysis due to economic or technological disadvantages, or because they did not meet the purpose of the proposed action to produce the gold resource discovered on Calista Corporation and TKC lands at the Donlin Gold site.

Findings

Impacts to subsistence for the mine site, transportation infrastructure and pipeline components of Alternative 6 are the same as for Alternative 2. Alternative 6 may result in a significant restriction to subsistence uses to communities on the Kuskokwim River due impacts from barge traffic, to the village of Crooked Creek and Napaimute due to impacts from the mine site, and to the villages of McGrath, Takotna and Nikolai for increases in competition for subsistence resources from non-local users along the pipeline ROW.

The Cumulative Case – Evaluation and Findings

The cumulative case evaluates the impact of the proposed action (Alternative 2) in conjunction with past, present and reasonably foreseeable future activities in the Donlin Gold EIS Analysis Area. Possible reasonably foreseeable actions are summarized in Table 4.2-1 of the Donlin Gold Draft EIS.

Evaluation of the Effect of Use, Occupancy, or Disposition on Subsistence Uses and Needs

The Donlin Gold proposed action (Alternative 2) is far larger and far more geographically widespread than any actions that have occurred in the region to date, and will itself cause alterations in subsistence resources, access to subsistence resources and completion for subsistence resources. The reasonably foreseeable actions summarized in Table 4.2-1 will therefore likely contribute to the cumulative effects on subsistence resources and practices.

The cumulative effects for Alternatives 3A and 3B would be similar to Alternative 2. Although both these alternatives will reduce barge traffic on the Kuskokwim River due to reduced diesel fuel barging, proposed cargo barge traffic would still occur and affect riverine habitats, subsistence resources, and subsistence activities associated with the river. Alternative 3A and 3B would contribute to the cumulative effects on subsistence resources and practices.

The cumulative effects for Alternatives 4, 5A, and 6A would be similar to Alternative 2, and would also contribute to the cumulative effects on subsistence resources and practices. When the impacts fuel and other hazardous waste spills are taken into account, the proposed action and all action alternatives involve major impacts, and would to contribute to the cumulative effects on subsistence resources and practices.

Evaluation of the Availability of Other Lands for the Natural Gas Pipeline ROW

The cumulative case would make no change in the ROW alignment, so the evaluation of alternative lands would be the same as Alternative 2.

Evaluation of Other Alternatives that would Reduce or Eliminate the Use, Occupancy, or Disposition of Public Lands Needed for Subsistence Purposes

Alternatives that would reduce or eliminate the use of public lands needed for subsistence purposes include Alternative 1 (No Action). Section 2.4, Alternatives Considered but Eliminated from Detailed Analysis, discusses other alternatives that were considered, but eliminated from detailed analysis due to economic or technological disadvantages, or because they did not meet the purpose of the proposed action to produce the gold resource discovered on Calista Corporation and TKC lands at the Donlin Gold site.

Findings

The cumulative case for the proposed Donlin Gold Project, may result in significant restriction to subsistence uses for the communities of Crooked Creek and Napaimute in relation to the mine site, the communities on the Kuskokwim River for barge traffic on the river (Bethel, Napaiak, Napaskiak, Oscarville, Kwethluk, Akiakchak, Akiak, Tuluksak, Upper and lower Kalskag, Aniak, Chuathbaluk, Napaimute and Crooked Creek), and the communities of McGrath, Nikolai and Takotna for increased access and competition from non-local users at the Farewell airstrip, along the pipeline right-of-way. In addition, potential spill scenarios involving ocean and river barge release of diesel fuel, cyanide, mercury, tailings dam failure, and release of untreated water from the pit lake and tailings dam after mine closure may also result in significant restriction to subsistence uses for the Kuskokwim River communities listed above.

Notice and Hearings

ANILCA § 810(a) provides that no “withdrawal, reservation, lease, permit, or other use, occupancy or disposition of the public lands which would significantly restrict subsistence uses shall be effected” until the federal agency gives the required notice and holds a hearing in accordance with ANILCA § 810(a)(1) and (2).

With the release of the Draft EIS and this analysis, BLM will provide notice to the affected local and regional subsistence advisory committees.

During the period of public meetings on the Draft EIS, the BLM will convene Section 810 Subsistence Impact Hearings to allow participation by residents from at least the following communities:

Transportation Infrastructure (Barging)

Bethel, Napaiak, Napaskiak, Oscarville, Kwethluk, Akiakchak, Akiak, Tuluksak, Upper and Lower Kalskag, Aniak, Chuathbaluk, Napaimute and Crooked Creek),

Pipeline

McGrath, Nikolai, Takotna, Tyonek and Skwentna

Mine Site

Crooked Creek, Napaimute

Subsistence Determinations Under ANILCA § 810(a)(3)(A), (B), and (C)

ANILCA § 810(a) provides that no “withdrawal, reservation, lease, permit, or other use, occupancy or disposition of the public lands which would significantly restrict subsistence uses shall be effected” until the federal agency gives the required notice and holds a hearing in accordance with ANILCA § 810(a)(1) and (2), and makes the three determinations required by ANILCA § 810(a)(3)(A), (B), and (C). The three determinations that must be made are: 1) that such a significant restriction of subsistence use is necessary, consistent with sound management principles for the utilization of the public lands; 2) that the proposed activity will involve the minimal amount of public lands necessary to accomplish the purposes of such use, occupancy, or other such disposition; and 3) that reasonable steps will be taken to minimize adverse impacts to subsistence uses and resources resulting from such actions [16 U.S.C. § 3120(a)(3)(A), (B), and (C)].

The BLM has found in this ANILCA 810 Evaluation that Alternatives 2, 3A, 3B, 4, 5A, 6 and the cumulative case considered in this EIS may significantly restrict subsistence uses. Therefore, the BLM will undertake the notice and hearing procedures required by the ANILCA § 810 (a)(1) and (2) in conjunction with release of the Draft EIS in order to solicit public comment from the potentially affected communities and subsistence users.

Should the proposed action have a positive finding, the determination that the requirements of ANILCA § 810(a)(3)(A), (B), and (C) have been met will be analyzed in the Final ANILCA § 810 Evaluation, and will be presented in the FEIS, and will include testimony and input from the communities in which subsistence hearings will be held.

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